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10/720,307

11/25/2003

Hidehiro Sonoda

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07/21/2006

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EXAMINER

BRIGGS, NATHANAEL R

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 07/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/720,307 | SONODA ET AL. | |
| | Examiner | Art Unit | |
| | Nathanael Briggs | 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-6 and 12-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Takatori et al. (US 6,504,592).
4. Regarding claim 1, Takatori discloses an LCD (see figures 5 and 16, for instance) having electrodes (20) of the one side formed on the pixel regions on the surface of one of the substrates (22) arranged facing each other with the liquid crystals (5) interposed therebetween and on the side of the liquid crystals (5), and electrodes (19) of the other side formed on at least the pixel regions on the surface of the other substrate (21) on the side of the liquid crystals (5); wherein each electrode (20) of the one side has a shape of a plurality of circular patterns or patterns close to circles (Fig.

16) that are arranged in contact with each other, whereby a region where the electrode of the one side is not formed is surrounded by the plurality of circular patterns or patterns close to circles of an odd number of three or more (Fig. 16); and projections (23) are formed on the surface of the other substrate (21) on the side of the liquid crystals (5) at portions facing nearly the centers of the circular patterns or the patterns close to circles (20). Claim 1 is therefore unpatentable.

5. Regarding claim 2, Takatori discloses the LCD (see figures 5 and 16, for instance) of claim 1 wherein the electrodes (20) of the one side are pixel electrodes (column 22, lines 44-45), and the electrodes (19) of the other side are the opposing electrodes (column 22, lines 59-61). Claim 2 is therefore unpatentable.

6. Regarding claim 3, Takatori discloses the LCD (see figures 5 and 16, for instance) of claim 2 wherein each pixel electrode (20) has a shape in which a plurality of circular patterns or patterns close to circles are arranged neighboring each other and electrically connected to each other (Fig. 16). Claim 3 is therefore unpatentable.

7. Regarding claim 4, Takatori discloses the LCD (see figures 5, 9, and 16, for instance) of claim 2 wherein there are formed a plurality of gate signal lines (27) in parallel and a plurality of drain signal lines (28) in parallel intersecting the gate signal lines (27) on the surface of one of the substrates (22) on the side of the liquid crystals (5), the regions surrounded by the gate signal lines (27) and the drain signal lines (28) serving as pixel regions; the pixel electrodes (20) are arranged on the pixel regions together with the switching elements that are driven by scanning signals from the gate signal lines (27, column 22, lines 53-55), so that video signals are fed from the drain

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signal lines (28) through the switching elements; and among the circular patterns or the patterns close to circles (Fig. 16) of the pixel electrodes (20), the circular patterns or the patterns close to circles (Fig. 16) near the drain signal lines (28) or the gate signal lines (27) are so deformed as to possess a side that goes along the side of the drain signal lines (28) or of the gate signal lines (27) at portions near the drain signal lines (28) or the gate signal lines (27). Claim 4 is therefore unpatentable.

8. Regarding claim 5, Takatori discloses the LCD according to claim 1 (see figures 5, 9 and 16, for instance), wherein the pattern close to the circle (Fig. 16) is of a polygonal shape having five or more corners. Claim 5 is therefore unpatentable.

9. Regarding claim 6, Takatori discloses the LCD according to claim 5 (see figures 5, 9, and 16, for instance), wherein the polygonal shape has rounded corners (Fig. 16). Claim 6 is therefore unpatentable.

10. Regarding claim 12, Takatori discloses an LCD (see figures 5, 9, and 16, for instance) having electrodes (20) of the one side formed on one of the substrates (22) arranged facing each other with the liquid crystals (5) interposed therebetween, and electrodes (19) of the other side formed on the other substrate (21); wherein each electrode (20) of the one side has a shape in which a plurality of circular patterns or patterns close to circles (Fig. 16) are arranged being electrically connected together; and projections (23) are formed on the other substrate (21) at portions facing the circular patterns or the patterns close to circles (Fig. 16). Claim 12 is therefore unpatentable.

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11. Regarding claim 13, Takatori discloses the LCD according to claim 12 (see figures 5, 9, and 16, for instance), wherein the electrode (20) of the one side (22) comprises the plurality of circular patterns or patterns close to circles of an odd number of three or more (Fig. 16) to surround a region where the electrode of the one side has not been formed. Claim 13 is therefore unpatentable.

12. Regarding claim 14, Takatori discloses the LCD according to claim 12 (see figures 5, 9, and 16, for instance), wherein the electrodes (20) of the one side are pixel electrodes (column 22, lines 44-45), and the electrodes (19) of the other side are common electrodes (column 22, lines 59-61). Claim 14 is therefore unpatentable.

13. Regarding claim 15, Takatori discloses the LCD according to claim 14 (see figures 5, 9, and 16, for instance), wherein there are formed a plurality of gate signal lines (27) in parallel and a plurality of drain signal lines (28) in parallel intersecting the gate signal lines (27) on the surface of one of the substrates (22) on the side of the liquid crystals (5), the regions surrounded by the gate signal lines (27) and the drain signal lines (28) serving as pixel regions; the pixel electrodes (20) are arranged on the pixel regions together with the switching elements that are driven by scanning signals from the gate signal lines (27, column 22, lines 53-55), so that video signals are fed from the drain signal lines (28) through the switching elements; and among the circular patterns or the patterns close to circles (Fig. 16) of the pixel electrodes (20), the circular patterns or the patterns close to circles (Fig. 16) near the drain signal lines (28) or the gate signal lines (27) are so deformed as to possess a side that goes along the side of

the drain signal lines (28) or of the gate signal lines (28) at portions near the drain signal lines (28) or the gate signal lines (27). Claim 15 is therefore unpatentable.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takatori et al. (US 6,504,592) in view of Okada et al. (US 2003/0053020).

16. Regarding claim 7, Takatori discloses an LCD (see figures 5, 9, and 16, for instance) having pixel electrodes (20) formed on the pixel regions on the surface of one of the substrates (22) arranged facing each other with the liquid crystals (5) interposed therebetween and on the side of the liquid crystals (5), and opposing electrodes (19) formed on at least the pixel regions on the surface of the other substrate (21) on the side of the liquid crystals (5); wherein the pixel electrodes (20) are groups of patterns in which a plurality of circular patterns or patterns close to circles (Fig. 16); and projections (23) are formed on the surface of the other substrate (21) on the side of the liquid crystals (5) at portions facing nearly the centers of the circular patterns or the patterns close to circles (Fig. 16). However, Takatori does not expressly disclose wherein the pixel electrodes are such that groups of patterns in which a plurality of circular patterns or patterns close to circles are neighboring each other in one direction, are arranged

neighboring each other in a direction at right angles with the above one direction, the patterns in one group of patterns being deviated by a half pitch from the patterns of the other neighboring groups of patterns, and the patterns being in contact with each other at their contours.

17. Regarding claim 7, Okada discloses an LCD (see figure 3, for instance), wherein the pixel electrodes are such that groups of patterns in which a plurality of circular patterns or patterns close to circles (EL1) are neighboring each other in one direction, are arranged neighboring each other in a direction at right angles with the above one direction, the patterns in one group of patterns being deviated by a half pitch from the patterns of the other neighboring groups of patterns, and the patterns being in contact with each other at their contours.

18. It would have been obvious for one of ordinary skill in the art at the time of the invention to use the pixel electrode structure of Okada in the LCD Takatori. The motivation for doing so would be to eliminate useless regions among the pixels, while controlling the threshold characteristic and remedying the unevenness of the viewing angle characteristics, as taught by Okada ([0009], [0027]). Claim 7 is therefore unpatentable.

19. Regarding claim 8, Takatori in view of Okada discloses the LCD according to claim 7 (see Takatori figures 5, 9, and 16; Okada figure 3, for instance), and Okada further discloses wherein the pixel electrodes (EL1) are such that groups of patterns in which a plurality of circular patterns or patterns close to circles (EL1) are neighboring each other in one direction, are arranged neighboring each other in a direction at right

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angles with the above one direction, the patterns in one group of patterns being deviated by a half pitch from the patterns of the other neighboring groups of patterns, and the patterns being electrically connected to each other at their contours ([0024]).

Claim 8 is therefore unpatentable.

20. Regarding claim 9, Takatori in view of Okada discloses the LCd according to claim 8 (see Takatori figures 5, 9, and 16; Okada figure 3, for instance), and Takatori further discloses wherein the pattern close to the circle is of a polygonal shape having five or more corners (Fig. 16). Claim 9 is therefore unpatentable.

21. Regarding claim 10, Takatori in view of Okada discloses the LCD according to claim 9 (see Takatori figures 5, 9, and 16; Okada figure 6, for instance), and Takatori further discloses wherein the polygonal shape has rounded corners (Fig. 16). Claim 10 is therefore unpatentable.

22. Regarding claim 11, Takatori in view of Okada discloses the LCD according to claim 7 (see Takatori figures 5, 9, and 16; Okada figure 3, for instance), and Takatori further discloses wherein there are formed a plurality of gate signal lines (27) in parallel and a plurality of drain signal lines (28) in parallel intersecting the gate signal lines (27) on the surface of one of the substrates (22) on the side of the liquid crystals (5), the regions surrounded by the gate signal lines (27) and the drain signal lines (28) serving as pixel regions; the pixel electrodes (20) are arranged on the pixel regions together with the switching elements that are driven by scanning signals from the gate signal lines (27, column 22, lines 53-55), so that video signals are fed from the drain signal lines (28) through the switching elements; and among the circular patterns or the

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patterns close to circles of the pixel electrodes (20, Fig. 16), the circular patterns or the patterns close to circles (Fig. 16) near the drain signal lines (28) or the gate signal lines (27) are so deformed as to possess a side that goes along the side of the drain signal lines (28) or of the gate signal lines (27) at portions near the drain signal lines (28) or the gate signal lines (27). Claim 11 is therefore unpatentable.

Conclusion

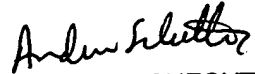
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathanael Briggs whose telephone number is (571) 272-8992. The examiner can normally be reached on 8:30 AM to 5:00 PM (EST) Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nathanael Briggs
7/19/2006


ANDREW SCHECHTER
PRIMARY EXAMINER